

Site Assessments for Underground Storage Tanks

Technical Guidance

Wisconsin Department of Natural Resources

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NOTICE

ILHR 10.734 states that when a site assessment is required, owners and operators must measure for the presence of a release where contamination is identified or is most likely to be present at the UST site. In addition, it states that in selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.

Section 292.11(2)(a), Wis. Stats., requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to immediately notify the Wisconsin Department of Natural Resources (WDNR) of the discharge.

Petroleum products and their constituents are hazardous substances. The discharger must notify WDNR immediately of all releases of petroleum products including leaking underground storage tanks, leaking piping and distribution systems and overfills.

Failure to notify WDNR of a discharge may have serious consequences including forfeitures of not less than \$10 or more than \$5000 for each violation (each day of continued violation is a separate offense) or ineligibility for reimbursement under the Petroleum Environmental Cleanup Fund Act (PECFA, s. 101.143, Wis. Stats.).

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I. Introduction

A. Purpose of this Document

This document specifies technical procedures that are acceptable to the Department of Natural Resources for complying with the site assessment requirement. The attachments to this document provide additional information to the contractor(s) or environmental consultant(s) hired by the tank owner. Given the large number and wide variety of underground storage tanks (USTs) found in Wisconsin, it is not possible to develop comprehensive guidance applicable to every single case. If you encounter a situation not covered by this guidance, contact one of the Department of Natural Resources (DNR) contacts listed in "Instructions for Mailing Site Assessments" (attachment 1). Any questions regarding the legal requirements of ILHR 40 should be referred to the Department of Industry, Labor, and Human Relations (DILHR).

B. Purpose of the Site Assessment

The purpose of the site assessment is to determine if a release has occurred from an UST System. The definition of release includes any discharge from the system regardless of the cause (e.g. overfills, surface spills). A site assessment is required in accordance with ILHR 10 and applicable federal law. Even if a site assessment is not required, failure to perform one may limit an owner's ability to sell or lease the property.

NOTE: the detection of any release, no matter how small, must be reported to the DNR pursuant to s. 292.11, Wis. Stats., and causes the case to move out of the site assessment process and into the leaking underground storage tank (LUST) cleanup process. Conduct all sampling performed following the discovery of any release in accordance with the "Guidance on Conducting Environmental Response Actions" PUBL SW-157-92 (reference 1). In general, more samples are necessary to confirm complete cleanup of a LUST than to confirm clean closure of an UST (see Appendix Q of the Guidance entitled "Soil Sampling Requirements for LUST Site Investigation and Excavations" PUBL-SW-127; reference 2).

C. Site Assessment Process

When a site assessment is required, owners and operators must measure for the presence of a release where contamination is identified or is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.

Because an UST system can fail at any point, the site assessor must assess the tank system from the fill pipe(s), through the tank(s) and piping, to the dispenser(s) to properly assess the site. If the site assessor discovers obvious contamination he or she need not complete the site assessment sampling but should collect a confirmation sample and complete the closure documentation in its entirety. Also, because multiple releases can occur from an UST system, all system components (e.g. pumps and lines) not assessed during the site assessment must be assessed during the LUST site investigation for final closure of the LUST site.

NOTE: The term "site assessment" is also often used to refer to investigations of the degree and extent of a confirmed release and also to general investigations for the presence of contamination (i.e. environmental audits for property transfer). In this document, "site assessment" means the assessment of an UST system at the time of tank closure or change-in-service.

D. Applicability

ILHR 10 requires site assessments for certain tanks under specific conditions. The tanks affected include all underground storage tanks except tanks less than 60 gallons, farm and residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes, and USTs of 4,000 gallons or less capacity used for storing heating oil for consumptive use on the premises where stored. The exempt tanks are required to have site assessments if the product stored in them was ever resold.

The definition of tank in ILHR 10 includes all associated piping. A separate assessment is required for piping if abandoned at a different time from the UST. See the examples (attachment 2) or ILHR 10 for the definition of "farm tank" and "residential tank".

Site assessments must be performed for affected tanks when:

1. Permanently closing all or part of the UST system (tank, piping or both) by removal or closure in place.

NOTE: ILHR 10 allows closure in place only in a limited number of situations and permission must be obtained from DILHR.

2. There is a change-in-service defined as a change from storing a federally regulated substance to a non-regulated substance.
3. Holes or rust plugs are found in a tank during the process of relining the tank (holes or rust plugs identified either before or after sandblasting).
4. A request is made to extend, beyond twelve months, the temporary closure of a tank that does not meet the performance standards (except spill and overfill protection) for new UST's or the upgrade requirements for existing USTs specified in ILHR 10.
5. Directed by DNR or DILHR due to a current or potential threat to human health or the environment from an UST closed prior to December 22, 1988.

Site assessments must be performed at the time of tank closure, change-in-service, relining, etc. If the site assessment is not performed at this time, follow the procedures under "Late Site Assessments." A site assessment is not required if one of the external release detection methods allowed under ILHR 10 is in use and properly functioning at the time of closure or change-in-service and indicates that no release has occurred.

E. Reporting and Cleanup of Releases

Report releases to DNR immediately in accordance with the release reporting guidelines (attachment 3). This includes all contamination regardless of amount or method of discovery, including contaminated backfill, surface spillage, and releases discovered either during visual assessment, field screening or following lab analysis. Unconfirmed releases (for example high field readings) can and should be reported as suspected releases.

Imminent threats to people, property or the environment must be addressed immediately. Reference 1 provides guidance on emergency response.

If the contamination is discovered during the visual assessment it is not necessary to complete the site assessment sampling. However, collect at least one sample of the contaminated soil for laboratory analysis to provide confirmation of the release. In addition, it is necessary to complete the site assessment report and provide the information shown under "Documentation" regardless of the number of samples collected. The documentation may be completed as a separate closure report or included in the site investigation report and should be submitted to DILHR and the appropriate DNR field office shown in attachment 1.

DNR requires investigation and cleanup at all sites with confirmed releases in accordance with the state spills law, ch. 292.11, Wis. Stats. Reference 1 provides detailed technical guidance on investigating and remediating confirmed releases. "Cleanup Process for the Emergency and Remedial Response Program" PUBL-SW-132 (reference 3) provides an overview of the leaking underground storage tank (LUST) cleanup process.

F. Roles During UST Closure and Assessment

Tank closure and site assessment tasks are shown in table 1. The exact order of execution will depend upon contractor considerations and site-specific conditions. The table shows the party most likely to complete specific jobs and a source for additional information. "Contractor" means that either the tank remover, the site assessor, or a third contractor or consultant can complete the task. All parties involved should cooperate to complete the tasks shown in table 1. Underground storage tanks sites may contain numerous safety hazards due to the presence of such things as heavy equipment, buried utilities, excavations, and liquids, gases, and solids that may be flammable, explosive, and/or toxic. Site safety is everyone's responsibility and the site assessor should observe all safety procedures.

NOTE: Tank removers and site assessors must be certified by DILHR. See Attachment 4 for information on contractor certification under ILHR 10.

II. Pre-Assessment Steps

A. Check Local Ordinances

Always check for local ordinances that may govern tank closures. ILHR 10 specifies minimum statewide standards and local governments can establish more restrictive requirements.

Table I - Roles During UST Closure and Assessment

JOB/TASKS	CONTRACTOR	INFORMATION
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Planning		
Develop field procedures plan	Site assessor	DNR
Develop tank cleaning and tank waste management plan	Tank remover	DNR/ILHR 10
Develop contingency plan for contaminated soil and water	Site assessor	DNR
Contact diggers hotline for hazards and contaminant pathways	Contractor	800-242-8511

Tank Removal		
15 day advance notice	Owner/Remover	ILHR 10
Complete closure checklist (SBD-8951)	Contractor/Other	ILHR 10
Manage surplus product	Tank Remover	ILHR 48
Remove tank	Tank Remover	ILHR 10
Clean tank	Tank Remover	ILHR 10-DNR
Manage tank and tank wastes	Tank Remover	DNR
Complete inventory form(s) (SBD-7437)	Owner/Contractor	ILHR 10
Send form(s) to DILHR and include copies in site assessment documentation	Owner/Contractor	ILHR 10

Site Assessment		
Inspect system	Site assessor	DNR
Inspect Excavation	Site assessor	DNR
Collect samples	Site assessor	DNR
Analyze samples	Certified Lab	DNR
Complete documentation	Site assessor	DNR
Send documentation to DNR & DILHR	Site assessor	DILHR-DNR

Release Response		
Report releases	See Attachment 3	DNR
Address emergencies	Contractor	DNR
Manage contaminated soil and groundwater	Contractor	DNR
Develop workplan	Contractor	DNR

Develop Tank Closure and Site Assessment Plans

The following site specific written plans should be prepared prior to beginning the tank closure and site assessment and made available for reference and inspection by the fire chief, DNR, DILHR and/or the local authority having jurisdiction. The plans identify the person or contractor responsible for completing the jobs outlined above. The responsibility for developing and following the plans listed below rests with the owner or the contractor, consultant, or individual acting as the owner's agent. The plans do not have to be submitted as part of the site assessment report.

1. **A Field Procedures Plan** that addresses the following:
 - a. who will collect soil samples;
 - b. anticipated depth to groundwater;
 - c. number of samples, sample locations, and parameters and methods for analysis;
 - d. sample jars and collection procedures;
 - e. sample preservation, handling, storage, and transportation;
 - f. decontamination of sampling tools;
 - g. field screening methods, locations, and procedures; and
 - h. scheduling with the laboratory analyzing the samples.
2. **A Tank Cleaning and Tank Waste Management Plan** including the following elements:
 - a. site health and safety plan;
 - b. methods for inerting or venting and cleaning the tank. The "Tank and Sludge Management Factsheet" (Attachment 5) includes guidelines for cleaning tanks.
 - c. designation of responsibility and a plan for managing surplus product such as oil or gasoline in accordance with DILHR product handling rules (ILHR 48). Attachment 5 includes guidelines for managing surplus product.
 - d. designation of responsibility and a plan for managing tank wastes such as sludge or accumulated water in accordance with DNR solid and hazardous waste rules (NR 500 and NR 600). Attachment 5 includes guidelines for managing tank wastes; and
 - e. a plan for transporting excavated tanks and a description of the final disposal point of the tank. Attachment 5 includes guidelines;

NOTE: *Tanks must be cleaned on site in accordance with solid and hazardous waste regulations. Obtain an emergency waiver from the DNR district hazardous waste specialist as detailed in Attachment 5 if the tanks cannot be cleaned on site.*

3. **A Contingency Plan** for managing contaminated soils and contaminated excavation water, that specifies:
 - a. the person who will notify DNR if a release is discovered in accordance with attachment 3;
 - b. the phone number and name of the DNR LUST project manager or program assistant to notify in the event of a release;
 - c. the person or firm that will develop a work plan to address the contamination. A list of firms that offer this service is also acceptable. Guidance on selecting an environmental consultant for petroleum cleanup is provided in "Selecting an Environmental Consultant" PUBL-SW-113 (reference 4);
 - d. A plan for managing contaminated soil and/or groundwater in accordance with NR 500 and NR 600. "Solid Waste Rules Concerning Petroleum Contaminated Soil" (reference 5) includes guidelines for managing these wastes;
 - e. a list of and source for additional field equipment necessary to investigate and cleanup contamination and to respond to emergencies;
 - f. a proposed location for stockpiling contaminated soil;
 - g. procedures for identifying contaminated soil in accordance with reference 2; and
 - h. the person or firm that can transport excavated contaminated soil for treatment or disposal, if necessary.

C. Plan to Attend the Tank Removal

Site assessors must be present at the time of tank closure to properly assess the site. It is much easier to visually assess the tank system while it is still on site and to evaluate the excavation while it is still open. It is much easier to collect soil samples while the hole is open and the excavator is available to assist than it is to collect native soil samples with borings through backfill. Attending the removal requires close coordination with the remover. If the site assessor is early, the cost of the assessment increases unnecessarily. If the site assessor is late, the cost of the removal increases unnecessarily. Follow the procedures for late site assessments provided below if it is not possible to conduct the site assessment at the time of tank closure.

NOTE: It is not necessary for the site assessor to witness the entire closure operation in order to comply with this requirement. It is sufficient to be present immediately following the removal of the tanks while the excavation is still open and the tanks are still on site.

III. Visual Inspection

The site assessor should visually assess the UST site, system, and excavation. Inspection can be the simplest and most cost-effective way to identify the presence of contamination at an UST site. The visual assessment consists of the following components:

A. Weather

Note and report weather conditions including temperature and precipitation during and immediately prior to the site assessment.

B. Site Conditions

Inspect the site for signs of contamination such as surface staining and stressed or dead vegetation. Look for previously unreported tanks.

C. Excavation

Inspect the excavation for signs of a release such as free product, soil discoloration, an oil sheen on excavation water, or obvious odors. Identify soil type(s) and the soil profile(s) in the excavation(s) using the Unified Soil Classification System (USCS). At a minimum, the assessor should describe:

1. Type of backfill originally surrounding the tank;
2. Native soil type(s) in excavation;
3. Total depth of the excavation(s); and
4. Type of backfill used to fill in the excavation (if applicable).

Information from the United States Department of Agriculture (USDA) Soil Survey may be submitted as supplementary information. However it is still necessary to describe the soil conditions observed at depth in the actual excavation as they may vary significantly from soil survey information.

Identify free-standing water present in the excavation as either runoff, perched water, or groundwater and report the depth to the water. Determine the type of water present through knowledge of local groundwater conditions or by pumping the water out of the excavation and observing how long before the water returns.

Note: Manage contaminated excavation water in accordance with attachment 5.

D. Tank Condition

The site assessor should visually inspect the tank system to assess the degree of corrosion and/or the structural integrity of the tanks and piping. Indicators of the degree of corrosion include metal thickness and whether the original tank coating is intact. Scrape off patches of encrusted soil on the tank(s) and piping using a wire brush or knife and inspect the underlying surface for holes. Note and report evidence of previous repairs. Report the tank condition in the closure documentation.

E. Obvious Contamination

If free product, strong petroleum product odors, stained soil or backfill, or other conditions make it obvious that a release from the tank has occurred, then it is necessary to report the release immediately to the DNR in accordance with attachment 3. It is not necessary to complete the site assessment sampling. However, collect at least one sample of the contaminated soil for laboratory analysis to confirm the release in accordance with the procedures under "Sample Collection-- Obvious Contamination" and complete the closure documentation. Report the specific cause of the release (e.g. hole in tank, loose piping), if known.

NOTE: the purpose of the site assessment is to determine whether a release has occurred. If a release is discovered then it is necessary to move out of the site assessment process and conduct all subsequent sampling and investigation in accordance with reference 1. In general more samples are necessary to confirm complete cleanup of a LUST than to confirm clean closure of an UST (see reference 2).

IV. Sample Collection

A. Sampler Certification

Persons collecting soil samples for ILHR 10 site assessments must be certified by DILHR or supervised by a certified site assessor. Attachment 4 provides information on certification.

B. Soil Sample Locations

Collect samples in the native soil, not in the backfill material around the tank, from all of the following locations:

1. In native soil one to three feet beneath each end of each tank in the excavation.
2. In native soil on the supply side one to three feet beneath each dispenser. Only take one sample beneath each dispenser, regardless of the number of products dispensed.
3. In native soil one to three feet beneath the surface every 20 feet, or segment thereof, along piping

runs. In doing so, take samples preferentially under swing joints, flex connectors, and pipe elbows, choosing the joints to sample. Collect at least one piping sample in addition to any pump island samples, if the piping run is greater than 10 feet.

4. In native soil 5 feet beneath remote fill pipe opening, if present.
5. Beneath the middle of tanks over 18 feet long.

These are minimum sample locations and attachment 2 includes examples. Additional sample locations include changes in soil type and underground conduits for utilities. Collect additional samples if warranted on the basis of field screening or other factors.

C. Variations to Soil Sample Locations

1. Redundant Samples

Eliminate redundant samples. Examples include the following:

- a. If the length of the tank is less than 5 feet, collect only one sample beneath the tank instead of two.
- b. If the pump is located above the tank or within 2.5 feet of the end of tank do not collect a pump sample.
- c. If dispensers are separated no more than 5 feet, collect one sample for every two dispensers.
- d. If two or more tanks are laid end to end and are within 2.5 feet of each other, collect one sample instead of two between the two tank ends. Samples should still be collected under each end of each tank for tanks laid side by side.
- e. If part of the piping runs above the tank(s), do not collect separate piping samples under those sections.
- f. If the tank is less than 5 feet from a building and the piping leads directly from the tank into the building (e.g. waste oil tanks, fuel oil tanks), do not collect a piping sample.
- g. If a piping run contains more than one product line or lines are separated by less than 2.5 feet, collect only one sample every 20 feet.

2. Sampling Backfill

If native soil is absent from the soil sample locations described above then sample backfill, provided the type of backfill is coarse sand or finer. **DO NOT SAMPLE PEA GRAVEL AND COARSER MATERIAL.** If pea gravel or coarser material extends more than three feet beneath the prescribed sample locations, excavate to native soil for the purposes of sample collection. If groundwater is encountered in gravelly backfill (i.e. the depth to groundwater is less than the depth to native soil) then excavate laterally to sample native soil from the sidewalls of the excavation just above the water level.

3. Obvious Contamination

If free product, strong petroleum product odors, stained soil or backfill, or other conditions make it obvious that a release from the tank has occurred, then do not complete the site assessment soil sampling. Report the release immediately in accordance with attachment 3 and collect one sample of contaminated soil for laboratory analysis to provide confirmation of the release. Collect the sample from an area that is representative of the contamination in accordance with the soil sampling guidance presented in this document. Do not collect a composite sample from several locations.

In addition, complete the documentation requirements for a release (see below). "Overexcavation" of obvious contamination, if attempted, should be conducted in accordance with reference 1. The site assessment soil sampling locations do not apply to overexcavation. Closeout samples for overexcavations should conform to the procedures for documenting LUST case closure provided in reference 2.

4. Closure in Place

ILHR 10 allows closure in place of USTs in a limited number of circumstances. Closure in place must be requested in writing from the DILHR authorized agent responsible for closure verification. Only written permission for closure in place is valid. Site assessments are still required when tanks are closed in place. Collect soil samples from all of the locations specified above by one of the following methods.

- a. **Soil borings**, through the use of a drill rig, power auger, or hand auger. Conduct the borings within three feet of and below each end of each tank, drilling at an angle if necessary. Conduct soil borings along piping runs and pump islands immediately adjacent to these structures. The borings must be completed, documented and abandoned in compliance with the requirements of ch. NR 141, Wis. Adm. Code, which governs monitoring wells and soil borings.
- b. **Holes cut in the bottom of the tank(s)**. If the tank(s) can be safely entered, and holes can be cut in the bottom, the soil beneath the tank(s) may be sampled through the holes. Cut the holes near each end of each tank. If native soil cannot be accessed from the holes, sample the backfill material. Include visual observations of the interior of the tank in the closure documentation.
- c. **Test pits beside the tank(s)**. Many tanks are abandoned in place due to their proximity to building foundations. Often it is possible to excavate a test pit or trench on the side of the tank opposite the foundation. Soil conditions can then be visually assessed and soil samples collected directly.
- d. **Groundwater monitoring**. If soil samples cannot be collected within 3 feet of the tank ends then it is necessary to assess the site using groundwater monitoring. Install at least three groundwater monitoring wells within 20 feet of the tank(s), accurately measure water levels in the wells to determine the hydraulic gradient, and conduct at least one round of groundwater sampling in accordance with the LUST analytical guidance. The wells must be constructed and documented in accordance with ch. NR 141, Wis. Adm. Code.

NOTE: *Closure in place makes site assessment more difficult. It may require special equipment or persons with special qualifications or training. Some certified site assessors may not be technically qualified to conduct a site assessment for closure in place. The closure in place may also present problems if remediation is necessary, in future property sales, or in future construction. Therefore it is advisable to remove the tanks(s) if possible. Contact the DNR district LUST project manager for the county in which the tank is located to discuss site-specific sampling problems and additional alternatives for conducting an adequate site assessment.*

5. Shallow Depth to Groundwater

If the groundwater table occurs within the tank or piping excavation, collect soil samples from the side walls of the excavation above the water level as near as possible to all of the sample locations described above.

NOTE: Do not collect groundwater samples for the purpose of conducting the site assessment. However, water removed from the excavation must be disposed of properly and this may require sampling.

6. Alternate Sampling Plans

Tank owners and their consultants may submit alternative site-specific site assessment sampling plans where the total number of samples according to the site assessment guidance would exceed 15 samples. The site assessor should develop the plan and submit it to the DNR for review prior to tank closure. The purpose of an alternate sampling plan is to eliminate unnecessary or excessive sampling. The plan should describe how the number of samples specified by the site assessment guidance is excessive and how the alternate plan will adequately check for the presence of a release. Submit alternate sampling plans at least 30 business days prior to the site assessment to the DNR address listed for clean site assessments in attachment 1 and include a diagram of the tank system.

7. Late Site Assessments

Soil sampling for site assessments should be performed at the time of tank closure while the tank excavation is open and the soil sampling locations are readily accessible. However, occasionally site assessments must be performed at a later date (e.g. if the tank owner closed the tank and did not know that a site assessment was required). In these cases, use and document the following procedures, which also apply to resampling of sites when holding times are exceeded or samples are cross-contaminated or broken:

- a. collect samples from all of the areas specified under sample locations above.
- b. collect samples using test pits or soil borings. If borings are used, use hammer samplers to collect undisturbed samples.
- c. collect samples from a depth greater than the depth of the original excavation since contamination migrates downward. Samples collected at shallower depths are unreliable due to dilution by clean backfill.
- d. identify and report all soil types including the native soil type, the type of backfill used to fill in the excavation following removal, and the original backfill used to install the tank (if still present).

Reports prepared for late site assessments should provide all of the information included under "Documentation" and should be submitted to the appropriate DNR office, in accordance with, attachment 1.

D. Analytical Parameters, Methods, Holding Times, and Quality Control

All soil samples sent to a laboratory must be analyzed for parameters and using methods appropriate for the substance contained in the UST system. The parameters and methods to use for petroleum USTs are specified below and summarized in table 2 in accordance with the "Leaking

Underground Storage Tank and Petroleum Analytical and Quality Assurance Guidance” PUBL-SW-130 93 (reference 6). Contact the DNR District LUST project manager with questions regarding parameters and methods for investigating suspected releases from chemical tank systems.

1. Parameters

The parameters for which soil samples must be analyzed depend on the substance stored in the UST and/or piping as shown below.

- a. analyze soil samples from tank systems that stored regular or unleaded gasoline, aviation fuel (grades 80, 100, and 100 low lead) for **gasoline range organics (GRO)**.
- b. analyze soil samples from tank systems that stored diesel, jet fuel, fuel oil, crude oil, lubricating oil, or waste oil for **diesel range organics (DRO)**. -
- c. analyze soil samples from tank systems where the substance stored is unknown for both **gasoline range organics (GRO)** and **diesel range organics (DRO)**.
- d. analyze soil samples collected under system components where multiple substances were stored for the high volatility parameter. For example, if a piping run contains both a gasoline line and a diesel line, collect only one sample every 20 feet and analyze it for GRO.

Table 2
Analytical Parameters, Methods, Holding Times, and Quality Control

SUBSTANCE IN TANK	ANALYTICAL PARAMETER	ANALYTICAL METHOD	SHIPPING/ EXTRACTION	HOLDING TIME	JARS/ SIZE	QUALITY CONTROL	NOTES
Regular, Unleaded, Aviation fuel (Grades 80 & 100)	Gasoline Range Organics (GRO)	Wisconsin DNR Modified GRO Method	Shipping: 4 days, Methanol Preservation: Within a Maximum of 2 Hours After Collection	14 days	60 ml WM: 35 gm, 40 ml WM: 20 gm	Methanol Trip Blank, Temperature Blank if "Blue Ice" Used	Use In-field Preservation with Methanol
Diesel, Fuel Oil, Jet Fuel, Crude Oil, Lubricating Oil, Waste Oil	Diesel Range Organics (DRO)	Wisconsin DNR Modified DRO Method	Shipping: 4 days, Solvent Addition: Within 18 Hours of Delivery to Lab in Most Cases, 114 Hours Maximum	47 days	60 ml WM: 35 gm, 40 ml WM: 20 gm	Temperature Blank if "Blue Ice" Used	

2. Methods

Soil samples should be analyzed according to the analytical methods approved by the DNR as shown below. A laboratory certified for purgeable organics under ch. NR 149, Wisconsin Administrative Code, must conduct the analysis.

- a. The approved method for gasoline range organics (GRO) is the **Wisconsin DNR Modified GRO**

Method. This method includes field preservation of samples using methanol.

- b. The approved method for diesel range organics (DRO) is the **Wisconsin DNR Modified DRO Method**.

3. Holding Times

Handle and process all samples in accordance with the following timeliness

- a. GRO samples should be preserved in the field with methanol within 2 hours of collection, delivered to the lab within 4 days of collection and analyzed within 14 days of collection.
- b. DRO samples should be delivered to the lab within 4 days of collection. ne lab should add solvent within 18 hours of receipt and analyze the samples within 47 days of collection.

4. Quality Control

The following quality control measures apply to samples collected for site assessment:

- a. If a GRO sample is collected, one GRO trip blank (i.e. a tared jar containing 25 mis of purge and trap grade methanol) should accompany the sample jars to the site and be analyzed with the soil samples. The jar should undergo all procedures performed on soil samples. If soil is added directly to jars containing methanol, open and close the trip blank at one of the sampling locations. If methanol is added to the jars using one of the transfer procedures described in attachment 6, perform the transfer procedure on the trip blank.
- b. All samples must have their temperature measured upon receipt by the lab. If ice is used in the cooler then no special measures are necessary because the lab can determine the temperature directly from either the ice or the meltwater. However, if "blue ice" or other commercial coolants are used then a temperature blank (i.e. a sample jar containing ordinary water) should accompany the samples to the lab.

The preceding guidance is summarized in table 2. Reference 6 provides additional information about the analytical parameters and methods.

E. Sample Collection Procedures

Collect soil samples in accordance with the soil type, substance, and analytical parameters and methods. Sample collectors should observe all standard scientific and industry practices. All certified site assessors must submit written descriptions of their standard sample collection techniques to DILHR and DNR. The following sampling procedures are provided as guidance. Attachment 6 includes additional suggestions and a list of sampling equipment suppliers.

- 1. Identify sample collection points based on tank system layout and soil sample locations specified above. Assign sample I.D. numbers at this time or at the time of collection.
- 2. Identify the type of analysis for each sample location. For example, two GRO samples for each gasoline tank, two DRO samples for each diesel tank, etc. Collect GRO samples in tared wide

mouth 60 ml VOC vials containing 25 mls of purge and trap grade methanol. Collect DRO samples in tared 60 ml VOC vials. All sample jars should have teflon lined septa caps.

NOTE: *The purpose of methanol preservation is to reduce errors due to volatilization and biodegradation. Soil preserved in methanol is a hazardous waste unless analyzed by a lab. DNR advises site assessors not to collect extra GRO samples and to analyze all GRO samples they collect. Additional information on methanol sample preservation is included in attachment 6.*

3. Gain access to the soil sample locations. This can be done directly by entering the excavation, remotely using a soil coring device such as a hand auger or split barrel core sampler, or indirectly by sampling from the backhoe bucket.

NOTE: *Enter excavation only if they are extremely shallow or if entry will comply with applicable OSHA regulations. Sampling from the backhoe bucket, while convenient and safe, increases errors due to non-representative samples, volatilization, and cross-contamination. Therefore, it is especially important to follow all recommended sampling procedures when sampling from the backhoe bucket.*

4. Use appropriate sampling equipment to collect samples. Sampling equipment should be capable of rapidly collecting samples with a minimum of atmospheric exposure. Depending on the type of equipment used, transfer the soil to the laboratory jar directly or using a lab spatula or a hand trowel.
 - c. **Hand augers** are limited to use in unconsolidated sediments and are particularly useful in sandy materials but tend to be impractical in dense clays or stony materials. Use of extensions may provide remote access to soil sample locations at some excavations.
 - d. **Trowels** can be used to collect soil samples from in place or the backhoe bucket.
 - e. **A large (30 ml) plastic syringe** with the end cut off can be used to collect soil samples with a minimum of disturbance in sands and silts.
 - f. **A metal pipe** can be used to collect soil samples with minimal disturbance in heavy clays. The pipe can be pounded into the soil and the resulting sample extruded using a metal or plastic plunger.
 - g. **Split spoon samplers** consist of a metal cylinder split longitudinally and threaded on both ends. A cutting bead is threaded onto the lower end and a drill-rod attachment onto the upper end. The split spoon sampler is driven into the formation at the bottom of the borehole, usually using a drilling rig. When withdrawn and opened, the sample is relatively undisturbed and shows the natural stratification of the geologic material. They are most commonly used with borings, (i.e. for closure in place or advance sampling) but can be used to sample soil directly.
 - h. **Shelby tubes** are thin-walled metal tubes that are driven into the formation, usually using a drilling rig.
 - i. **Gloves** are recommended for personal protection from exposure to contaminants. Wear either specially formulated (e.g. nitrile) or disposable gloves for this purpose. Do not wear work gloves while collecting samples because they cannot be adequately decontaminated.
5. Collect at least one soil sample from each sample location from a freshly exposed surface. Remove at least 18" of soil from the immediate surface area where the sample is to be taken. Work quickly and minimize agitation of the soil to prevent loss of volatile contaminants. Collect at least 25 g of

soil for GRO and DRO samples. Do not combine soil from several different locations into one sample because it decreases the specificity of the sample and increases the potential for volatilization.

NOTE: GRO samples should contain at least 25 g of soil but do not need to weigh exactly 25 g (the laboratory determines the exact sample weight). Correct sample size can be determined prior to sampling by weighing-out 25 g of site soil using a pocket spring scale, placing it into an empty 60 ml jar and marking a fill line. It is not necessary to weigh actual samples intended for analysis and weighing can cause excessive volatilization of contaminants in the sample. A 30 ml plastic syringe, if used, can also be used to ensure an ample sample.

6. Seal the sample making sure that no soil particles are present on the mouth of the jar or cap. Use a toothbrush or other utensil to sweep particles off the rim. Also sweep the inside of the lid, if you put it down. A good sample seal is necessary to prevent loss of volatile contaminants. Shake GRO samples after sealing to coat the soil with methanol.
7. Pack samples for lab analysis in ice immediately. Keep samples at or below 4° C after collection and prior to analysis.
8. Collect an additional sample for field screening (if used) from each soil sample location. Refer to the "LUST Field Screening Procedures" PUBL-SW-176 (reference 7) for more information on field screening. **DO NOT PERFORM HEADSPACE ANALYSIS ON SAMPLES COLLECTED FOR LAB ANALYSIS.**
9. Collect an additional sample for dry weight determination at each sampling location. Do not put dry weight samples for GRO analysis in jars containing methanol.
10. Collect grab samples for field identification of soil type.
11. Properly label each sample collected. Assign an I.D. (if not done previously) and write the number directly on the sample label in waterproof ink. Write the sample I.D., the time of collection, the sample location, type of analysis, and method of preservation (if applicable) on the chain-of-custody form. Also write the number and time and date collected in the field notebook along with a verbal description of the sample location (e.g., north end of 10,000 gallon unleaded tank). It may also be helpful sketch the site in the field notebook and to write the number on the sketch.
12. Look at the sample for the presence of obvious contamination or staining. Identify the soil texture using the USCS classification and note soil color. Note any obvious sample odor. Also note the moisture content (dry, damp, moist, saturated). Record observations in field notebook.

NOTE: DO NOT SNIFF SOIL SAMPLES. Petroleum vapors are extremely toxic and the human nose cannot objectively measure for the presence of contamination. Rely on field screening and lab results

13. Decontaminate sample collection equipment between each sampling location. Scrub sampling tools in detergent or solvent solution, rinse (repeatedly) in pure water, wipe dry with paper towel or allow to air dry. Use rinse water that is distilled or obtained from a source that is known to be uncontaminated. Wash bare hands or safety gloves (neoprene, nitrile, etc.) in addition to the sampling tools. Change disposable gloves, if used, between each sampling location. Decontaminate syringes between each sample location or use a different syringe for each sample location.

Decontaminate plastic syringes, if reused, using soap and water only because solvents can cause

them to leach phthalates. It is not necessary to decontaminate equipment between lab, headspace, dry-weight, and grab sample collection at a particular sampling location.

14. Proceed with field analysis (if used). Reference 7 provides field screening procedures.
15. Complete the LUST chain-of-custody form included in attachment 6. List name of sampler, name of project/property, time samples relinquished.

NOTE: samplers can use their own chain-of-custody form as long as it contains all data included on the standard LUST program chain-of-custody form

16. Pack samples in ice and ship to certified lab. Use insulated styrofoam shippers or other style of ice chest. Follow methanol shipping instructions included in attachment 6.

F. Field Documentation

Soil samplers should keep comprehensive field notes. Field notes are not required to be submitted in the closure report. Record the following information in the field notebook and retain for future reference in accordance with Reference 6.

1. Date(s) of field work and time of arrival on site.
2. Equipment used for screening (make, model, lamp strength, etc).
3. Calibrations performed, calibration curves or standards.
4. Results and techniques used for field screening.
5. Sampling locations (this requires an accurate map).
6. Sample ID that clearly correlates to sample locations shown on a map.
7. Methods and/or devices used in sampling.
8. Climatic conditions during screening and sampling.
9. Decontamination procedures used.
10. Time and date of sample collection.
11. Type of sample (soil, groundwater, surface water, etc.).
12. Field preservation performed.
13. Any deviations from standard operating procedures or special conditions.
14. Name of sampler.

G. Field Instruments

A photoionization detector (PID), flame ionization detector (FID), or portable gas chromatograph (GC) may be used to screen soil samples collected from the sample locations to provide support of laboratory results and field observations. Field instruments may also be used to screen additional locations where the cost of collecting a laboratory sample would be prohibitive. Examples of such locations include changes in soil type and underground utility conduits. Field instruments may not be used to decrease the number of soil samples that must be laboratory analyzed. Collect and present all field instrument data in accordance with DNR-approved field instrument techniques provided in reference 7. "Additional Information Required for Certification" (located after the references) lists sources for information on field screening techniques and sampling locations.

V. Documentation

Site assessments must be properly documented to show that the site assessment requirement has been met. If a release is discovered prior to sample collection, provide all of the information shown below except for the sample results and lab reports. Minimum acceptable documentation is outlined below in checklist form for convenience.

Send copies of the site assessment documentation to DNR. Clearly mark the report "SITE ASSESSMENT FOR UNDERGROUND STORAGE TANK" on the cover or inside page. Submit a separate report for each site assessed. If it is necessary to include several sites in one report, then a copy of the report should be submitted for each individual site assessed. Send the documentation to the following address if there is no evidence of a release:

Tank Response Unit - SW/3
DNR
P.O. Box 7921
Madison, WI 53707

If there is any indication of a release (including contaminated backfill or low detects), send the documentation to the appropriate DNR district contact as shown in attachment 1. Include a distribution list showing the contacts receiving copies in the report.

The DNR recommends that the site assessment documentation follow the sequence of information listed here. This will allow for a quick completeness check and more timely review of submittals. Incomplete reports will be listed as indeterminate sites until all of the necessary information has been received.

A. Site Background Information

Include a narrative describing site background information. Obtain the information through interviews with present and past owners and site inspections. Obtain groundwater information from the United States Geological Survey, the Wisconsin Geologic and Natural History Survey, city water utilities, local health departments, environmental drillers, water well drillers, and published reports. Provide the following information in the narrative:

1. Cover letter and report distribution;
2. UST system owner/operator;
3. Land owner (if different);
4. Address of tank site;
5. Legal description of site (quarter/quarter, quarter, section, township, and range);
6. Certified site assessor: name, address, phone number, and certification number;
7. Site assessment subcontractors (e.g. drillers): name, address, and phone number;

8. Summary of past and present property use;
9. Description of tanks removed previously;
10. Results of tank tightness tests (if performed);
11. Information on past system leaks or repairs;
12. Results of previous investigations;
13. Other tanks/gas stations/LUST sites on surrounding properties;
14. Depth to groundwater and local groundwater use;

B. Tank Activities and Excavation

The site assessment should state the reason why the assessment was done (e.g., the tank removal, relining, closure in place).

1. Method(s) of tank closure (e.g., removal, closure in place, DILHR order);
2. Date of removal or abandonment;
3. DILHR certified remover/cleaner: name, address, phone number, and certification number;
4. Subcontractors (e.g. excavators, waste disposal): name, address, and phone number;
5. Description of tanks removed (size, age, substance stored);
6. Number of tanks remaining on site;

C. Tank Cleaning and Disposal Provide the method used to clean the tank(s) and the final disposal of the tank(s) including:

1. handling of any cleaning wastewater;
2. location where tank was cleaned;
3. method of tank transport;
4. documentation of emergency waiver to transport tank (if applicable);
5. names, addresses, and phone numbers of firms dismantling, transporting, and disposing of tank(s).

NOTE: Tanks and wastewater are regulated as wastes in Wisconsin, and must be disposed of properly under Wisconsin law. Please refer to Attachment 5.

D. Surplus Product Management

Provide the final disposition of any product remaining in the tank at the time of closure, including:

1. types of liquids;
2. quantity of liquids;
3. final disposition of liquids;
4. names, addresses and phone numbers of firms storing, transporting, and/or recycling liquids.

NOTE: Surplus product is regulated as a flammable and combustible liquid by DILHR. Please refer to attachment 5.

E. Tank Sludge Management

Provide the final disposition of any wastes remaining in the tank at the time of closure, including:

1. types of sludge;
2. quantity of sludge;
3. waste characterization data;
4. copies of hazardous waste manifests and EPA generator i.d. numbers (if manifested);
5. final disposition of sludge;
6. names, addresses, and phone numbers of firms storing, transporting, recycling, or disposing of sludge.

NOTE: Tank sludge is regulated as a waste in Wisconsin. It is either a solid waste or a hazardous waste, and can either be tested to determine if it is hazardous, or simply handled as a hazardous waste. Please refer to attachment 5.

F. Site Location Map

Provide a map showing the location of the site relative to nearby towns, streets or major highways. Sections of USGS topographic maps, highway maps, or plat maps with the site location clearly marked are acceptable as a site location map.

G. Site Layout Plan

The site layout/plot plan should be to scale and provide the locations of tanks, piping, dispensers, utilities, buildings, driveways, and parking areas. Show the locations of field and laboratory sampling points and other relevant data. Label all sampling points with identification numbers (or letters) cross-referenced to laboratory and tank information included in the body of the report. Show the limits and depth of the excavation and an outline of the tank system components within the excavated area. Label each tank removed (e.g., 10,000 gallon unleaded). Number tanks of the same size holding the same substance as shown on the sample site sketch in attachment 2 and write the number on the tank inventory form. If the location of the pumps or piping cannot be readily depicted in plan view or if they were removed previously, include an explanatory note on the site plan (e.g. "pump above tank"). The plot should be legible. In checklist form, the site plan should show:

1. tanks;
2. piping;
3. dispensers;
4. remote fill pipes;
5. utilities;
6. buildings;
7. driveways;
8. parking areas;
9. property lines (if within map area);
10. field instrument sampling points numbered in accordance with data tables;
11. lab analysis sampling points numbered in accordance with data tables;
12. areal extent of excavation;
13. map scale (between 1"=10' and 1"=20');
14. north arrow;
15. descriptive title;
16. name of map-maker;

H. Visual Inspection

1. Weather
 - a. temperature;
 - b. precipitation (on day of assessment and previous day);
2. Site Conditions
 - a. surface staining;
 - b. stressed or dead vegetation;
 - c. previously undiscovered or unregistered tanks;
3. Excavation
 - a. excavation depth;
 - b. free product, if present;
 - c. obvious odors, if present;
 - d. soil discoloration, if present;
 - e. oil sheen on excavation water, if present;
 - f. soil type/profile (USCS classification), including backfill;
 - g. free standing water, if present;
 - (1) type (runoff, perched, or groundwater)
 - (2) depth to water
 - (3) results of pump-out test (if conducted);
4. Tank System Components
 - a. tank condition;
 - b. piping condition;
 - c. possible leak locations;
5. Confirmation Sample for Obvious Contamination

I. Soil Sampling

1. Soil Sample Data Presentation

Provide soil sample results in tabular form and include all of the following data. See sample table in attachment 2.

- a. sample ID that clearly correlates to a sample location provided on the site map.

NOTE: Include the sample ID whenever providing information on samples in the report.

- b. lab result for each sample;
- c. compounds or parameters analyzed for or detected;
- d. units (parts per million or parts per billion)
- e. depth at which sample was taken.
- f. time and date sample was collected.
- g. petroleum product odor if noticed;
- h. sample soil type;
- i. relative moisture content of sample;

2. Field Screening Results (if applicable)

If field screening was performed, provide the following information. The information may be combined with the soil sample data listed above into one table.

- a. sample ID that clearly correlates to a sample location provided on the site map.
- b. peak reading for each sample;
- c. stable reading for each sample (optional);
- d. compounds or parameters analyzed for or detected;
- e. units (instrument units as either calibration gas or total organic vapors).
- f. depth at which sample was taken;
- g. time and date samples were collected and analyzed;
- h. relative moisture content of sample;
- i. petroleum product odor if noticed;
- j. method of analysis;
- k. instrument quenching, if applicable;
- l. sample soil type;

3. Lab Reports

Provide the following data from the LUST Standard Data Reporting Form (4400-152) included in attachment 6 in accordance with reference 6. It is not necessary to use the standard form as long as all of the information is provided. For example, standard laboratory reports providing the following and signed by the analyst may be used.

- a. sample ID;
- b. internal laboratory ID;
- c. project name;
- d. date of sample extraction;
- e. date of sample analysis;
- f. flags on data (if applicable);
- g. Wisconsin certified lab number;
- h. analyst's signature;
- i. associated quality control data (if applicable);
- j. copies of chain of custody.

J. Discussion

Include a narrative describing the results of the assessment. The narrative should clearly present the evidence relevant to determining whether a release occurred from the UST system and describe any unusual situations encountered but not covered by this guidance.

K. Supporting Documentation and Information

Provide the following information in the body of the report or as appendices or attachments to the report:

- 1. Standard sample collection procedures;
- 2. Copies of lab reports and chain-of-custody forms;
- 3. Field screening documentation in accordance with reference 7;

4. Copies of the tank inventory forms (SBD-7437) for each tank closed filled out as completely as possible;

NOTE: The original forms should be submitted to DILHR.

5. Additional documentation for surplus product and tank waste management (e.g., manifests, bills of lading);
6. Boring logs and abandonment forms (if applicable);
7. Photographs (optional)

L. Other Information Requested by DNR or DILHR

REFERENCES

1. Guidance on Conducting Environmental Response Actions (PUBL-SW-157-92).
2. Soil Sampling Requirements for LUST Site Investigation and Excavation (PUBL-SW-127; Appendix Q of the **Guidance on Conducting Environmental Response Actions-4/92**)
3. Cleanup Process for the Emergency and Remedial Response Program (PUBL-SW-132-3/92)
4. Selecting an Environmental Consultant (PUBL-SW-113-11/91)
5. Solid Waste Rules Concerning Petroleum Contaminated Soil (Appendix 0 of the **Guidance on Conducting Environmental Response Actions-4/92**)
6. LUST and Petroleum Analytical and Quality Assurance Guidance (PUBL-SW-130-93; Appendix B of the **Guidance on Conducting Environmental Response Actions-6/93**)
7. LUST Field Screening Procedures (PUBL-SW-176).

These references are available from:

LUST Information Requests
Department of Natural Resources
P.O. Box 7921
Madison, WI 53707
(608) 266-2111

ADDITIONAL INFORMATION FOR CERTIFICATION

Field Measurements: Dependable Data When You Need It, EPA publication 530/UST-90/003, September 1990. Provides information on field screening techniques for petroleum releases. Superintendent of Documents Stock No. 055-000-00368-8, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238. \$5.50, Visa and MasterCard accepted.

A Guide to the Assessment and Remediation of Underground Petroleum Releases, API Publication 1628, 2nd Edition, 1989. Pages 1-20 provide an excellent overview of where to look for spilled petroleum. American Petroleum Institute, 1220 L St NW, Washington, DC 20005 (202) 682-8000. \$37.00 + shipping and handling if prepaid.

ATTACHMENT 1

INSTRUCTIONS FOR SUBMITTING UNDERGROUND STORAGE TANK SITE ASSESSMENTS

DEPARTMENT OF NATURAL RESOURCES 7/97

1. A site assessment report that shows no contamination should be sent to the following address:

UST Site Assessments - RR/3
Department of Natural Resources
PO Box 7921
Madison WI 53707

2. A site assessment report documenting a release or the removal of one or more tanks where any of the tanks showed any sign of contamination should be sent to the DNR region for that county:

<u>County</u>	<u>Region</u>	<u>County</u>	<u>Region</u>
Adams	WCR	Marathon	WCR
Ashland	NOR	Marinette	NER
Barron	NOR	Marquette	NER
Bayfield	NOR	Menominee	NER
Brown	NER	Milwaukee	SER
Buffalo	WCR	Monroe	WCR
Burnett	NOR	Oconto	NER
Calumet	NER	Oneida	NOR
Chippewa	WCR	Outagamie	NER
Clark	WCR	Ozaukee	SER
Columbia	SCR	Pepin	WCR
Crawford	SCR	Pierce	WCR
Dane	SCR	Polk	NOR
Dodge	SCR	Portage	WCR
Door	NER	Price	NOR
Douglas	NOR	Racine	SER
Dunn	WCR	Richland	SCR
Eau Claire	WCR	Rock	SCR
Florence	NOR	Rusk	NOR
Fond Du Lac	NER	Sauk	SCR
Forest	NOR	Sawyer	NOR
Grant	SCR	Shawano	NER
Green	SCR	Sheboygan	SER
Green Lake	NER	St Croix	WCR
Iowa	SCR	Taylor	NOR
Iron	NOR	Trempealeau	WCR
Jackson	WCR	Vernon	WCR
Jefferson	SCR	Vilas	NOR
Juneau	WCR	Walworth	SER
Kenosha	SER	Washburn	NOR
Kewaunee	NER	Washington	SER
La Crosse	WCR	Waukesha	SER
LaFayette	SCR	Waupaca	NER
Langlade	NOR	Waushara	NER
Lincoln	NOR	Winnebago	NER
Manitowoc	NER	Wood	WCR

Notifications of releases should be made immediately by calling the statewide spills hotline, 800-943-0003, or faxing the appropriate regional office. Notification by fax is preferred and should include the information on the fax format.

<u>Abbreviation</u>	<u>Region</u>	<u>Fax</u>
NER	Northeast Region	414-492-5859
NOR	Northern Region	715-365-8932
SCR	South Central Region	608-275-3338
SER	Southeast Region	414-229-0808
WCR	Western Central Region	715-839-6076

Mailing Addresses:

Northeast Region (NER) Southeast Region—Richards Street Annex (SER)
 1125 N. Military Avenue Box 10448 4041 N Richards St, PO Box 12436
 Green Bay WI 54307-0448 Milwaukee WI 53212

Northern Region(NOR) Western Central Region (WCR)
 107 Sutliff Avenue Box 818 1300 W. Clairemont Avenue Call Box 4001
 Rhinelander WI 54501 Eau Claire WI 54702-4001

South Central Region (SCR)
 3911 Fish Hatchery Road
 Fitchburg WI 53711

Fax Format:

1. Name, company, mailing address and phone number of person reporting the discharge:

2. Site information.

Name of site at which discharge occurred (name of site/business; not owners unless residence):
 Location (street address, no P0 boxes; if address, describe precisely, e.g. 1/4 mile NW of CTHS 60 & 123):
 Municipality (city, village, township in which the site is located - - not mailing address)

County:

Legal Description: ____1/4 ____1/4 Section:____ Tn:____ Range:____ E/W

3. Responsible Party (RP) and/or RP Representative Information

Company Name:

Contact Person:

Mailing Address (with zip code):

Telephone Number:

4. Identity, physical state and quantity of the hazardous substance discharged (check all that apply):

____ Unleaded gasoline ____ Fuel oil
 ____ Leaded gasoline ____ Waste oil
 ____ Diesel ____ Other: _____

5. Impacts to the environment (enter "K" for known or "P" for potential for all that apply):

____ Fire/explosion threat ____ Soil contamination
 ____ Contaminated private wells (# of wells) ____ Surface water impacts
 ____ Contaminated public wells ____ Floating product
 ____ Groundwater contamination ____ Other _____

6. Contamination was discovered as a result of:

____ Tank closure (site) assessment ____ Phase I or II Environmental Site Assessment
 ____ Other _____ On the following date: _____

7. Additional comments:

ATTACHMENT 2

Examples of Tanks Requiring Site Assessments

ILHR 10 specifies that a site assessment shall be performed for certain tanks under specific conditions. The tanks affected include all underground storage tanks except tanks less than 60 gallons, farm and residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes, and USTs of 4,000 gallons or less capacity used for storing heating oil for consumptive use on the premises where stored.

In general, site assessments are required for affected tanks at the time of closure (i.e. removal or abandonment) or change-in-service. For example:

Site Assessment Required:

- 100 gallon gasoline tank removed from bakery;
- 1,200 gallon gasoline tank abandoned in place at a residence;
- 1,500 gallon diesel tank removed from a farm;
- 4,100 gallon heating oil tank removed from a residence;
- 500 gallon heating oil tank removed from a gas station (fuel was sold from the tank).

Site Assessment Not Required:

- 55 gallon gas tank removed (anywhere);
- 700 gallon diesel tank removed from a farm;
- 3,000 gallon heating oil tank removed from a school.

The definition of tank in ILHR 10 includes all associated piping and a separate assessment is required for piping if abandoned at a different time from the UST. A “change-in-service” is defined as the continued use of a federally regulated UST to store a non-regulated substance. The definition of “farm tank” means a tank located on a tract of land (including fish hatcheries, rangeland and nurseries) devoted to the production of crops or raising animals and associated residences and improvements (“farm” tanks must be located on farm property). The definition of “residential tank” means a tank located on the same property as a one- or 2-family dwelling or an ILHR 57 residential building (apartments, condominiums, hotels, motels, dormitories, etc) and used only by the residents or for the maintenance of the property.

Note: tanks at these facilities must have site assessments if the product stored in them was ever sold.

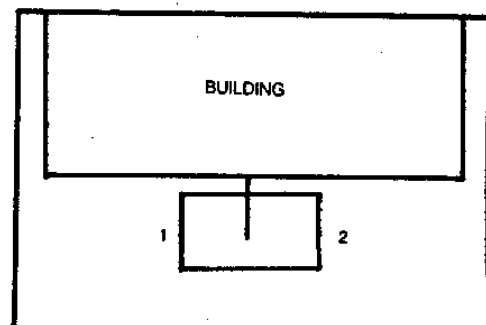
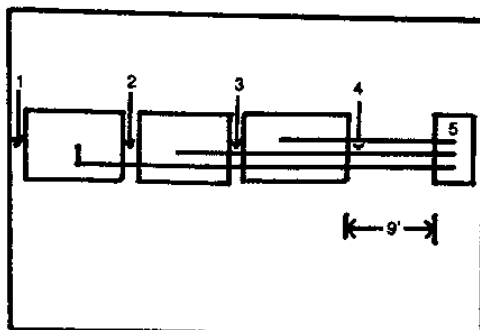
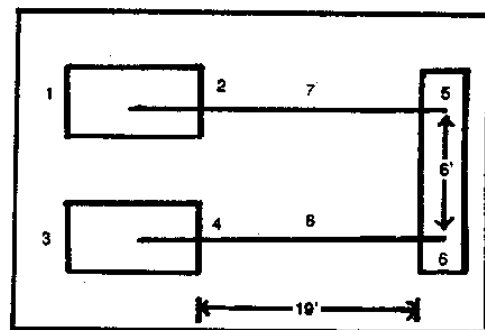
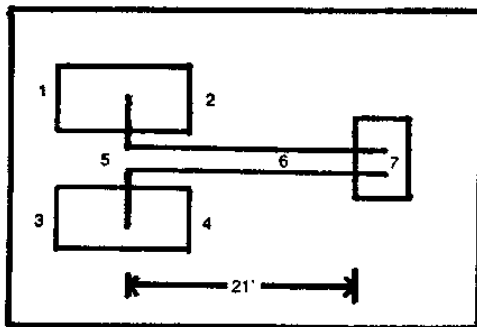
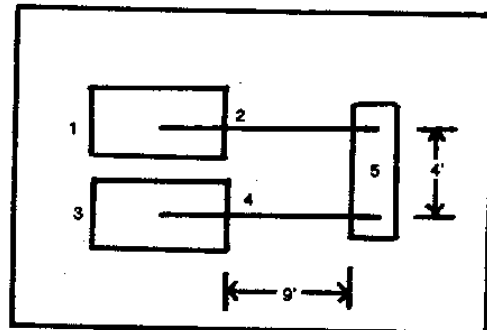
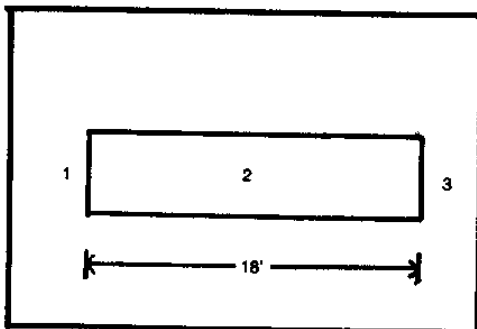
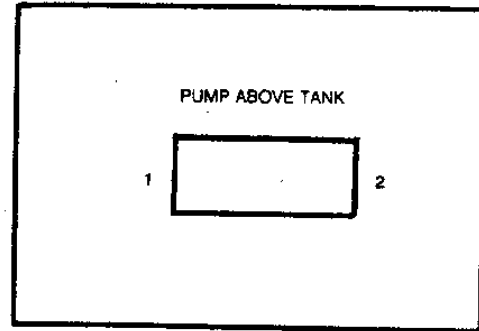
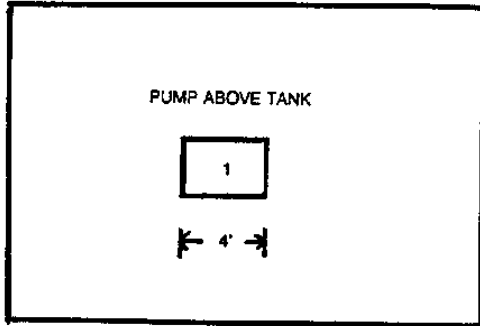
Site Assessment Required:

- piping run removed from gas station (1,000 gallon gas tank removed in 1985);
- 550 gallon gas tank removed from a marina (product sold to motorboats);
- 550 gallon gas tank removed from a resort (product sold to snowmobiles);
- 1,500 gallon gas tank emptied and used to store process water.

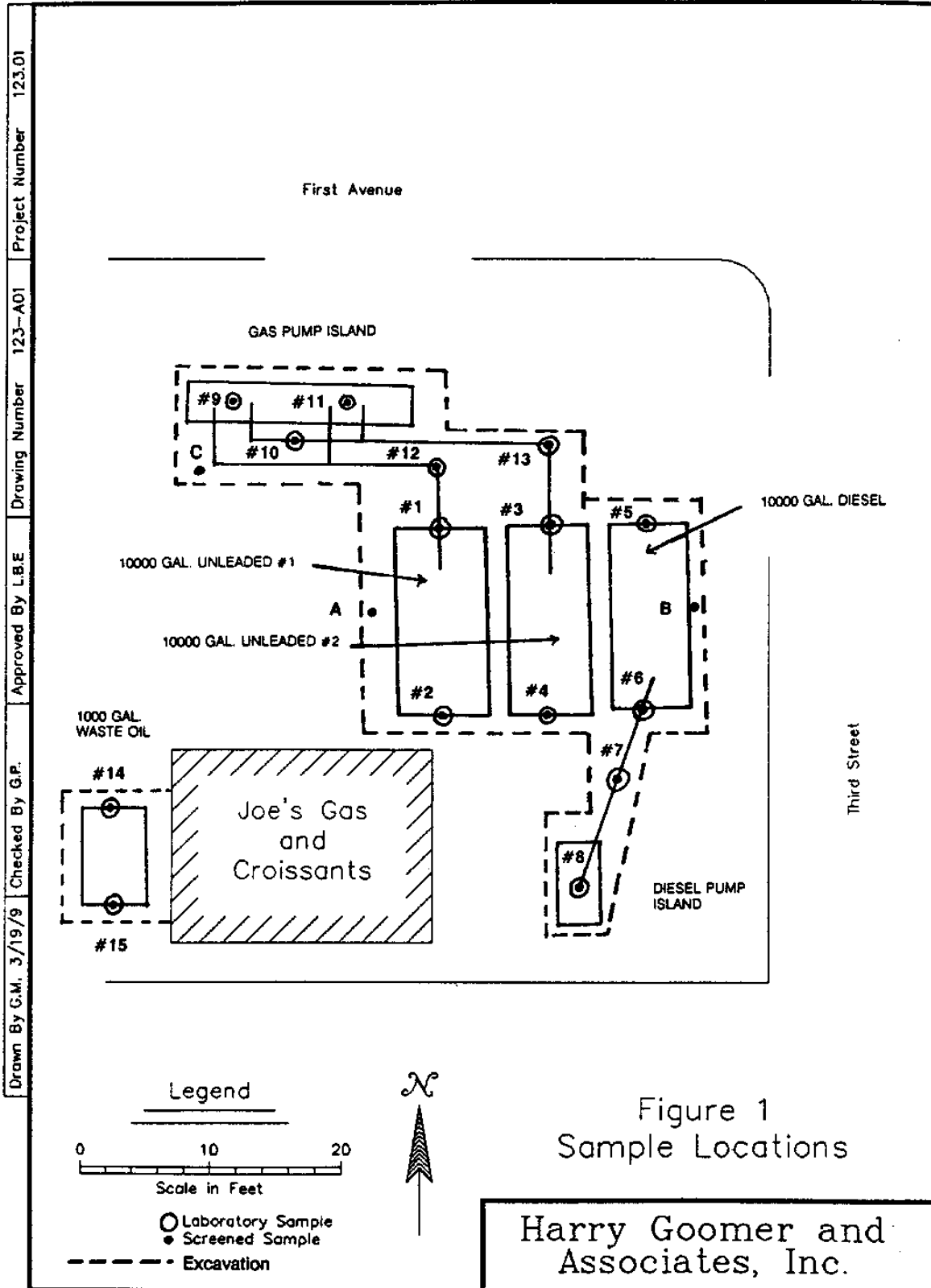
Site Assessment Not Required:

- 550 gallon tank removed from a resort (product never sold);
- 550 gallon gasoline tank removed from a hotel (product never sold).

Examples of Sample Locations



Example of Site Layout Plan and Soil Sampling Locations



Example of Table of Sample Results

JOB 8 GAS & CHROMATOGRAPHS
Laboratory & Field Screening Results

Test Sample Number	Sample Location	Sample Depth (ft)	Test Type	Medium Content	Date Collected	Time Collected	Sample Observed	Field Reading (psi)	Lab Results	Analysis Performed
A	West side of unroad turn #1	13	SP SAND	Moist	03/15/02	11:15 am	Yes	N/A	N/A	N/A
B	East side of closest turn	13	SP SAND	Moist	03/15/02	11:45 am	Yes	N/A	N/A	N/A
C	West side of gas pump island	13	SP SAND	Moist	03/15/02	3:15 pm	Yes	N/A	N/A	N/A
1	North end of unroad turn #1	13	SP SAND	Moist	03/15/02	1:10 pm	Yes	N/A	< 5	GC/MS
2	South end of unroad turn #1	13	SP SAND	Moist	03/15/02	1:20 pm	Yes	N/A	< 5	GC/MS
3	North end of unroad turn #2	13	SP SAND	Moist	03/15/02	1:30 pm	Yes	N/A	< 5	GC/MS
4	South end of unroad turn #2	13	SP SAND	Moist	03/15/02	1:40 pm	Yes	N/A	< 5	GC/MS
5	North end of closest turn	13	SP SAND	Moist	03/15/02	1:50 pm	Yes	N/A	< 10	GC/MS
6	South end of closest turn	13	SP SAND	Moist	03/15/02	2:00 pm	Yes	N/A	< 10	GC/MS
7	Closest piping run	5	OC TLL	Damp	03/15/02	3:05 pm	Yes	N/A	< 10	GC/MS
8	Closest pump island	5	OC TLL	Damp	03/15/02	3:15 pm	Yes	N/A	< 10	GC/MS
9	West end gas pump island	5	OC TLL	Damp	03/15/02	3:25 pm	Yes	N/A	< 5	GC/MS
10	Gas piping run, by island	5	OC TLL	Damp	03/15/02	3:50 pm	Yes	N/A	< 5	GC/MS
11	East end gas pump island	5	OC TLL	Damp	03/15/02	4:05 pm	Yes	N/A	< 5	GC/MS
12	Below gas piping run turn #1	5	OC TLL	Damp	03/15/02	4:10 pm	Yes	N/A	< 5	GC/MS
13	Below gas piping run turn #2	5	OC TLL	Damp	03/15/02	4:20 pm	Yes	N/A	< 5	GC/MS
14	North end of waste oil tank	7	SP SAND	Damp	03/15/02	8:45 am	Yes	N/A	< 10	GC/MS
15	South end of waste oil tank	7	SP SAND	Damp	03/15/02	8:50 am	Yes	N/A	< 10	GC/MS

13 = instrument unable to detect/detect

GC/MS = parts per million

N/A = not detected

GC/MS = not analyzed

Example of Table of Sample Results

JOE'S GAS & CROISSANTS
Laboratory & Field Screening Results

Soil Sample Number	Sample Location	Sample Depth (feet)	Soil Type	Moisture Content	Date Collected	Time Collected	Sample Odor?	Field Reading (i.u.)	Lab Results	Analysis Performed
A	West side of unlead. tank #1	13	SP-SAND	Moist	03/15/92	11:15 am	No	ND	N/A	N/A
B	East side of diesel tank	13	SP-SAND	Moist	03/15/92	11:45 am	No	ND	N/A	N/A
C	West side of gas pump island	13	SP-SAND	Moist	03/15/92	3:15 pm	No	ND	N/A	N/A
1	North end of unlead. tank #1	13	SP-SAND	Moist	03/15/92	1:10 pm	No	ND	<5	GRO
2	South end of unlead. tank #1	13	SP-SAND	Moist	03/15/92	1:20 pm	No	ND	<5	GRO
3	North end of unlead. tank #2	13	SP-SAND	Moist	03/15/92	1:30 pm	No	ND	<5	GRO
4	South end of unlead. tank #2	13	SP-SAND	Moist	03/15/92	1:40 pm	No	ND	<5	GRO
5	North end of diesel tank	13	SP-SAND	Moist	03/15/92	1:50 pm	No	ND	<10	DRO
6	Sourth end of diesel tank	13	SP-SAND	Moist	03/15/92	2:00 pm	No	ND	<10	DRO
7	Diesel piping run	5	GC-TILL	Damp	03/15/92	3:05 pm	No	ND	<10	DRO
8	Diesel pump island	5	GC-TILL	Damp	03/15/92	3:15 pm	No	ND	<10	DRO
9	West end gas pump island	5	GC-TILL	Damp	03/15/92	3:25 pm	No	ND	<5	GRO
10	Gas piping run, by island	5	GC-TILL	Damp	03/15/92	3:55 pm	No	ND	<5	GRO
11	East end gas pump island	5	GC-TILL	Damp	03/15/92	4:05 pm	No	ND	<5	GRO
12	Elbow, gas piping run, tank #1	5	GC-TILL	Damp	03/15/92	4:10 pm	No	ND	<5	GRO
13	Elbow, gas piping run, tank #2	5	GC-TILL	Damp	03/15/92	4:20 pm	No	ND	<5	GRO
14	North end of waste oil tank	7	SP-SAND	Damp	03/16/92	9:45 am	No	ND	<10	TRPH
15	South end of waste oil tank	7	SP-SAND	Damp	03/16/92	9:55 am	No	ND	<10	TRPH

i.u. = instrument units as isobutylene

ppm = parts per million

ND = not detected

N/A = not analyzed

ATTACHMENT 3

RELEASE REPORTING QUESTIONS AND ANSWERS

Who is legally responsible for reporting releases?

The person(s) in possession or control of the hazardous substance which was discharged or who caused the discharge of the hazardous substance. This is usually the owner/operator of the property on which the discharge occurred, however it can also be a generator, transporter or other person.

Is it solely the owner or is the contractor legally responsible as well?

The contractor is only responsible if he/she is in "possession/control" or "caused" the hazardous substance discharge.

Can the owner tell the contractor "I will report the release, fill in the excavation"?

Yes, the owner can tell the contractor to do so. However, if contaminated soil is used to fill in the excavation, the contractor has violated solid/hazardous waste disposal requirements and the contractor would then also have a responsibility to report a hazardous substance discharge under s. 1292.11(2), Wis. Stats.

What would be the contractor's liability if the release went unreported?

If clean fill was used to backfill the excavation, it depends upon the harm caused by the failure to report. It is possible that if a threat to public health or safety exists as a result of the failure to notify that the contractor would be liable to the third party who was injured (e.g. explosive vapors present and someone is injured in an explosion). If contaminated material was used to backfill the excavation, the contractor is as liable as the property owner for cleanup and may also be penalized for the failure to notify and illegal disposal.

Can the contractor withhold the information on the basis of the client-consultant relationship?

Under s. 292.11(8), Wis. Stats., the DNR and its authorized representatives are able to access property and inspect any record relating to a hazardous substance for the purpose of ascertaining compliance with s. 292.11, Wis. Stats. It is likely that the DNR would be able to obtain the information under this authority.

How can parties report releases to meet their legal obligations?

Either by contacting DNR directly or by phoning DNR's designated 24-hour telephone number, (800) 943-0003. This number is answered by the Division of Emergency Government (DEG) and receives calls covering all "emergencies". However, the LUST program requests that releases be faxed to the appropriate regional office using the fax format and that the DEG number be used for emergency situations.

Can parties report releases by telefax or federal express?

Yes, as long as they comply with the "immediate" time frame. Often the phone number for the appropriate DNR staff person is busy and faxing the notification is a more timely method of release reporting.

What information should be reported in a release notification?

The following information is usually requested by the DNR. Reporters should provide additional information that they think is relevant

1. Name, address and telephone number of the person reporting the discharge.

2. Name, address and telephone number of the responsible parties or the potentially responsible parties.
3. Date, time and duration of the discharge.
4. Location of the discharge, including the legal description (public lands survey system) if available.
5. Identity, physical state and quantity of the hazardous substance discharged.
6. Physical, chemical, hazardous and toxicological characteristics of the hazardous substance.
7. Cause of the discharge.
8. Emergency response or other response actions being taken.
9. Source, speed of movement and destination or probable destination of the discharged hazardous substance.
10. Distance and direction to the nearest inhabited buildings.
11. Impacts to the environment including air, land, and waters of the state and private wells.
12. Weather conditions existing at the scene, including wind direction and velocity.
13. Name, address and telephone number of environmental contractors (site assessment, investigation) involved.
14. Additional information deemed relevant by the reporter.

ATTACHMENT 4

Contractor Certification in Wisconsin

I. Regulatory Overview

- A. In 1988, the federal government promulgated comprehensive UST regulations dealing with prevention, detection and cleanup of releases from USTs. Two state agencies implement these regulations in Wisconsin.
 - 1. The Department of Industry, Labor, and Human Relations (DILHR) regulates the installation, operation, and closure requirements for underground and aboveground storage tank systems including:
 - a. Performance standards for new UST systems
 - b. Spill and overfill control requirements
 - c. Corrosion protection requirements
 - d. Limitations on acceptable repairs
 - e. Operations reporting and record keeping
 - f. Release detection and record keeping
 - g. UST closure and site assessment
 - 2. The Department of Natural Resources (DNR) is responsible for overseeing environmental cleanups when hazardous substances are released into the environment. The DNR administers rules pertaining to:
 - a. Reporting of suspected releases
 - b. Release investigation and confirmation
 - c. Reporting and cleanup of spills and overfills
 - d. Initial response to releases and abatement measures
 - e. Free product removal
 - f. Investigations for soil and groundwater cleanup
 - g. Corrective action plans to address contamination
 - h. Public notification of releases
- B. Wisconsin provides financial assistance for cleaning up tank leaks through PECFA, the Petroleum Environmental Cleanup Fund. This fund, administered by DILHR, may reimburse owners or operators of leaking tanks for costs associated with cleanup. There are eligibility requirements for the reimbursement.

II. Contractor Registration, Certification, and Qualifications

- A. Contractor Certification under ch. ILHR 10, Wis. Admin. Code.
 - 1. ILHR 10 establishes contractor certification in the following categories:
 - a. underground tank installers
 - b. tank tightness testers
 - c. aboveground tank installers
 - d. tank remover/cleaners

- e. tank site assessors
 - f. inspectors
 - g. tank liners
2. Certification is only required when work is performed on a tank system covered by ILHR 10. That means:
- a. the **site assessor** must be certified only when ILHR 10 requires a site assessment, i.e., for fleet and retail motor fuel tanks; farm and residential noncommercial motor fuel tanks larger than 1100 gallons; and heating oil USTs larger than 4000 gallons.
 - b. the **tank remover** and **cleaner** must be certified for all tanks covered by ILHR 10's closure requirements. In essence, this means all tanks larger than 60 gallons where the product stored has a flashpoint of 200°F or less.
3. If contamination is discovered during the visual inspection, the scope of work changes to a response action under the NR 700 series. Since a site assessment is no longer required, the person conducting the response action **need not** be certified by DILHR. The tank remover and cleaner **still do** need to be certified.

Information on contractor certification must be requested in writing from:

DILHR/Safety and Buildings Division
Attention: Luann Robb
P.O. Box 7969
Madison, WI 53707-7969
(608) 266-8980
FAX (608) 267-0592

B. Consultant Registration under ch. ILHR 47, Wis. Admin. Code.

DILHR also requires that petroleum cleanup consultants register in order to for their work to be reimbursed by PECFA. Ms. Robb's list includes the registered PECFA consultants. Contact Carol Lochner at 608-266-3723 for a registration form.

C. Consultant Qualifications under ch. NR 712, Wis. Admin. Code.

There is no formal approval process for doing environmental cleanup work in Wisconsin. Consultants are required to have specific qualifications to do specific work as outlined in ch. NR 712, Wis. Admin. Code. Copies of the NR 700 series are available from the Department of Administration, Document Sales (see below). Additional information including copies of detailed technical guidance for environmental cleanups is available from the Emergency and Remedial Response Section, Public Information Requests at (608) 264-6009. A publication checklist and instructions for ordering publications is included elsewhere in this document.

The DNR maintains lists of environmental consultants in different categories (see publication checklist). All of this information is self-reported and the DNR makes no warranties regarding it's accuracy or the reliability of firms on these lists. The DNR also maintains data on environmental consultants who have indicated they wish to be considered for state projects. The list of consultants who have provided information is enclosed. The actual data is intended for

department use and specialized reports are prepared on a site-specific basis. However, the data is public information and may be requested in its entirety in the form used by the department (computer disk). To get on the lists request the "Survey of Environmental Companies" and return it to the address on the publication checklist.

III. Copies of Administrative Rules

A. The following rules relate to site assessment

1. Ch. ILHR 10 \$10.00 (plus tax)
2. Ch. ILHR 47 \$8.00 (plus tax)
3. Chs. NR 700-736 \$10.00 (plus tax)

B. The address for purchasing administrative rules is:

Department of Administration
Document Sales
P.O. Box 7840
Madison, WI 53707
(608) 266-3358
1-800-362-7253

ATTACHMENT 5

PETROLEUM TANK AND SLUDGE MANAGEMENT FACTSHEET

Many owners of underground storage tanks (USTs) are in the process of removing or upgrading their tanks to come into compliance with new Environmental Protection Agency (EPA) regulations. Tank owners are responsible for properly managing any waste and product that remains in tanks which are being upgraded or removed.

The Department of Industry, Labor and Human Relations (DILHR) regulates petroleum products. See "Management of Petroleum Products at Tank Closure" for product handling guidance. DILHR considers tank contents less than two inches above the water line or the tank bottom to be wastes. These wastes are regulated by the Department of Natural Resources (WDNR) as either sludge or wastewater.

Tank sludge is a solid waste regulated under ch. 144, Wis. Stats. Depending on the products stored in tanks it may also be a hazardous waste. The state has the authority to impose civil or criminal penalties against tank owners, tank excavators, tank transporters, and tank salvagers who improperly dispose of tank sludge. The tank owner is responsible for classifying tank waste and making sure it is properly handled and disposed of in compliance with the regulations. Wastewater is regulated by WDNR chs. 281 and 283, Wis. Stats.

An owner or operator who permits improper disposal may become ineligible for reimbursement under the state's Petroleum Storage Remedial Action Fund (PECFA).

WASTEWATER HANDLING

Wastewater may be generated from either removal of tank condensate or from tank washing. It must be disposed of legally. Some tank excavation services include wastewater disposal. In sewerred areas you may contact the municipal wastewater treatment plant for disposal approval. In unsewerred areas you may contact a licensed septic disposal service to transport wastewater to a wastewater treatment plant. Septic haulers may not transport flammable liquids. Identify an acceptable method to dispose of wastewater prior to excavating tanks.

SLUDGE HANDLING

Tank sludge is solid waste. Tank owners are responsible for determining if it is also hazardous waste, and, if so, characterizing and managing it in accordance with all state and federal regulations. This is a technical procedure which should be handled by an experienced hazardous waste contractor. If there is a possibility that at any time the tank contents were not clean fuels additional analysis is required to identify residual wastes (PCB's, solvents, etc.). Complete analysis must be performed for waste oil tank sludges.

Tank sludge which has been classified as non-hazardous may be:

- a. Removed by a waste oil service for recycling.
- b. Disposed of in a licensed sanitary landfill with a clay liner if the sludge does not contain free liquids as determined by the paint filter test (EPA SW-846 methods, update II). Free liquids may be absorbed by adding clean absorbent materials such as sawdust or vermiculite.

Tank sludge which has been classified as hazardous must be:

- a. Transported to a licensed treatment, storage or disposal facility by a licensed hazardous waste transportation service.
- b. Manifested for transportation using a U.S. Environmental Protection Agency (EPA) identification (ID) number.

ID numbers can be obtained by completing an EPA notification form (8700-12, rev. 10-88). This form can be obtained from WDNR and must be submitted to:

US EPA Region V
Attn: EPA I.D. Number
P.O. Box A-3587
Chicago, Illinois 60690

The EPA ID number should be requested six weeks prior to tank excavation. ID numbers cannot be obtained from WDNR.

Sludge may be held on site while laboratory analysis is being completed or it may be transported immediately by a licensed transporter. (Liquid tank sludge may be manifested as ignitable waste). Some tank excavation companies offer sludge analysis and disposal services.

Sludge which is being held on site should be handled as follows:

- a. Consult the laboratory prior to sampling to determine proper sampling procedures and sample containers.
- b. Carefully transfer the sludge from the tank to a metal drum. Seal the drum, affix the date and label it "Petroleum Tank Sludge."
- c. To avoid contaminating non-hazardous sludge with hazardous sludge from other tanks, do not mix sludges from different tanks. Each sample jar and each sludge drum must be identified by matching numbers or descriptions.
- d. Handle sludge with care! Anyone transferring sludge must have proper training and wear protective clothing and gloves.
- e. Avoid spills! Spilling sludge may contaminate an otherwise clean tank excavation site. You must immediately report any spill to WDNR and clean up the spill.
- f. Maintain the drums containing sludge in good condition and in a secure location while waiting for laboratory results. Report the location of sludge drums in the tank closure assessment report which you provide to DILHR and WDNR.

TANK HANDLING

1. Clean tanks on site. It is illegal to transport tanks containing residues of hazardous wastes without a variance or emergency waiver from WDNR District hazardous waste staff. Uncleaned tanks present an explosive risk to the public. Inter-state carriers must obtain United States Department of Transportation approval to carry uncleaned tanks which have held hazardous materials.
2. Before removing sludge, cleaning tanks, and transporting tanks fill the tanks with inert gases or properly vent them as per DILHR requirements to remove explosive vapors. Occupational Health & Safety Administration (OSHA) confined space entry regulations apply.
3. Properly cleaned tanks may be recycled for scrap metal. WDNR does not regulate scrap metal recycling.

ADDITIONAL INFORMATION AVAILABLE

Tank Excavation Services:

Bureau of Petroleum Inspection & Fire Protection
Department of Industry, Labor & Human Relations
201 E. Washington Avenue
Madison, WI 53702

Hazardous Waste Management Services:

Bureau of Solid & Hazardous Waste Management
Department of Natural Resources
P.O. Box 7921
Madison, WI 53707

Certified Laboratories:

Office of Technical Services
Department of Natural Resources
P.O. Box 7922
Madison, WI 53707

Additional FACTSHEETS Available from WDNR:

“What is Hazardous Waste?”

“EPA Identification Number”

“Notification of Hazardous Waste Activity”

WDNR factsheets and forms to obtain EPA identification numbers can also be obtained from WDNR Regional Offices.

This factsheet is a summary of regulations. It may not be used as a substitute for the statutes and codes administered by the Departments of Natural Resources; Industry, Labor & Human Relations; Transportation; or the federal government. Consult the regulations and statutes for specific information. Remember, a tank owner, tank excavator, tank transporter and tank salvager may all be liable for improper sludge transportation and disposal.

MANAGING PETROLEUM PRODUCTS DURING TANK CLOSURES*

WHAT IS IT? WHO REGULATES IT?

*Product pumped to a maximum depth of 2" above the water level in the tank or 2" above the tank bottom whichever is higher. **Petroleum Inspection Program** (Department of Industry, Labor, and Human Relations)*

*Waste water, product-water interface, petroleum directly above product-water interface, sludge--anything below the 2" level. **Department of Natural Resources***

The Petroleum Inspection Program, under the authority of Chapter 168 of Wisconsin's Statutes and ILHR 48 of Wisconsin's Administrative Code, has established the following requirements for petroleum products removed from underground storage tanks (USTs) at time of closure:

PRODUCT MAY BE

- * transferred only by a tank vehicle which complies with "Standards for Tank Vehicles for Flammable and Combustible Liquids,"
- * returned to a terminal slop tank,
- * returned to a refiner, or

TO USE THE PRODUCT, FOLLOW THESE GUIDES.

- * Gasoline may be transferred to another retail facility.
- * Gasoline storage must meet the standards established in the Flammable and Combustible Liquids Code and the EPA rules.
- * Gasoline may be treated as interface and blended with new gasoline at terminals or refineries at a blend rate not to exceed 1/2 of 1%.
- * #1 oils must be downgraded to #2 fuel oil.
- * Oils may be sold without blending for nonsensitive burner and heating use, but only to a qualified buyer/user established with the concurrence of the District Petroleum Inspection Office.
- * Kerosene, #1 diesel, #2 diesel, #1 fuel oil, or #2 fuel oil may be blended with new #2 fuel oil up to a 50% rate and used or sold for heating purposes.
- * Products heavier than #2 fuel oil may be blended with an equal or heavier stock at up to a 50% rate and used or sold for heating purposes.

When product quantities of 500 gallons or more are involved, contact a Dept. of Industry, Labor, and Human Relations (DILHR) District Petroleum Inspection Office. They may:

- a. sample and test the product to determine compliance with ILHR 48 and then provide directions for disposition,
- b. allow transfer of the product to another facility for use or sale, or
- c. classify the product as falling outside the scope of ILHR 48

*Any product regulated by the Dept. of Industry, Labor, and Human Relations under UHR 48.

TRANSPORTING HAZARDOUS WASTE

To transport hazardous waste in Wisconsin you must:

*** obtain an I.D. Number from EPA using the Notification of Regulated Waste Activity Form 8700-12.** To request a notification form contact a Department Hazardous Waste Specialist or call (608) 266-2111.

*** obtain a hazardous waste transportation service license from the Department.** To request a transportation license application form contact a Department Hazardous Waste Specialist or call (608) 266-2111.

Persons transporting hazardous waste into or through Wisconsin who are based in another state should submit a license application and fee to the Department regional office where the transportation activity is concentrated or where the transporter enters Wisconsin.

The \$250 annual license fee covers the period from October 1 to September 30 and is required with your application. A \$150 late fee is assessed for late renewals.

*** Only accept hazardous waste accompanied by a manifest that is properly signed by the generator (unless the waste was generated by a very small quantity generator who is not required to, and does not, manifest its waste).** The transporter must ensure that copies of a manifest meeting the requirements of ch. NR 620, Wis. Adm. Code:

- a) are signed by the generator,
- b) are signed and dated by the transporter when the waste is accepted from the generator,
- c) accompany the waste at all times,
- d) are signed and dated by another transportation service that also transports the waste or by the facility indicated on the manifest that receives the waste, and
- e) are kept by the transporter for 3 years.

(NOTE: A manifest should not be used for shipments of only nonhazardous waste, except for PCB waste.)

If the transporter is unable to deliver the waste to the facility, alternate facility, or another transporter indicated on the manifest, the transporter must contact the generator for further directions. The transporter must then revise the manifest, obtain a second manifest, or return the waste to the generator.

*** properly package, label and mark the waste and placard the vehicle.** Hazardous waste must be packaged according to the hazardous materials transportation requirements in 49 CFR Part 173. Hazardous waste must be labelled and marked and vehicles must be placarded according to the hazardous materials transportation requirements in 49 CFR Part 172.

*** first secure containerized waste in the vehicle to prevent movement.**

* **properly train equipment operators.** Each transportation service must have an employee training program for hazardous waste handling and equipment operators. Topics in the program must include the problems and potential hazards posed by the transportation and disposal of hazardous waste, and equipment inspection techniques. Training records must be kept for 3 years.

* **periodically inspect your equipment.** Each transportation service must have an inspection program for hazardous waste handling and transportation equipment. The program must include a schedule for equipment inspection and a checklist of specific areas or items to inspect. Records of when the equipment was inspected, any problems observed and any maintenance must be kept for 3 years.

* **properly report and respond to hazardous waste discharges.**

This summary of hazardous waste transporter requirements is based on chapter NR 620, Wisconsin Administrative Code effective March 1, 1991. For more details, consult the code or contact the Department of Natural Resources Hazardous Waste Specialist for the county in which your site is located. Please note: requirements are slightly different for rail or water transport or when a transporter mixes wastes of different shipping descriptions.

What should be done if a discharge of hazardous waste occurs during transportation?

1. Call the division of emergency government's 24-hour number: 800-943-0003.
2. Comply with the hazardous substance spill requirements in section 292.11, Wisconsin Statutes and ch. NR 706, Wis. Adm. Code.
3. Give notice as required by 49 CFR 171.15 to the National Response Center at (800) 424-8802.
4. Report in writing as required by 49 CFR 171.16 to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, U.S. DOT, Washington, D.C. 20590.
5. Remove, containerize, transport and dispose of spilled hazardous waste according to the hazardous waste management requirements in chs. NR 600 to 685, Wis. Adm. Code.

TANK CLEANING

Wisconsin's hazardous waste management regulations require that storage tanks be adequately cleaned before they are transported or cut up for scrap.

Why Must Tanks Be Cleaned Properly?

It is illegal to transport tanks containing residues (including petroleum residues) that are hazardous wastes. Improperly or inadequately cleaned tanks may pose a fire or explosion hazard through the production of vapors from sludge residues. Also, these residues may be hazardous due to their toxicity. Inadequate cleaning may prevent recycling of the tanks as scrap metal.

When Is A Tank Cleaned Adequately?

It is difficult to clean a tank so completely that no product or sludge remains on the inside surfaces. The objective of cleaning tanks is to minimize the risk of explosion, fire, or toxic substance release.

There is no widely-accepted standard for determining if a tank has been adequately cleaned. However, adhering to the methods described in the publications API 2015 (American Petroleum Institute, 2101 L Street, NW, Washington, D.C. 20037) or NFPA 327 (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269) will produce a tank that can be recycled as scrap.

When a tank has been properly cleaned, an inspector should be unable to remove additional sludge or scale by wiping the inside surface of the tank with a rag or squeegee.

It is important to realize that even if a tank passes this “wipe test” it may contain sufficient traces of product to generate hazardous vapors. Therefore, cleaned tanks must be properly inerted or vented according to the standard procedures described in API 2015 or NFPA 327 before they are transported, cut apart or stored.

The materials collected during cleaning (rinsate and sludge) may be hazardous wastes. The generator of the waste (generally the owner of the contents of the tank) is responsible for determining if these materials are hazardous wastes. If they are, they must be stored, transported, and disposed of according to hazardous waste regulations. Details of Wisconsin's hazardous waste regulations may be obtained from the DNR Hazardous Waste Management program.

What Tank Cleaning Information Must Be Included In The Closure Assessment?

The closure assessment must state:

- (1) the method used for inerting the tank;
- (2) the method used for cleaning the tank (e.g., steam, water jet, chemical);
- (3) who cleaned the tank;
- (4) the quantity of waste residue (sludge and rinsate) collected during cleaning;
- (5) how the waste residue was managed;
- (6) where the tank or tank fragments were taken for disposal and the manner of disposal.

---> *Refer also to the factsheets “Petroleum Tank and Sludge Management” and “Management of Petroleum Products at Tank Closure”*

ATTACHMENT 6

METHANOL FIELD PRESERVATION FOR GRO SAMPLES - QUESTIONS & ANSWERS

What is the methanol field preservation and when is it required?

Methanol field preservation involves placing soil samples in jars containing methanol or adding methanol to jars containing soil while at the sampling location. The methanol reduces volatilization and biodegradation of soil contaminants prior to lab analysis, thus giving more accurate sample results.

Is the methanol preservation necessary?

There is strong evidence that samples which are not preserved in the field underestimate the contamination present. Scientific data shows that losses of 30 percent or more are typical. This data is supported by field experience where screening, odor and staining of soils indicate that contamination was present but lab samples showed no detect.

What is the procedure for preserving samples with methanol?

For samples collected for site assessments (i.e. closure assessments for underground storage tanks), the DNR recommends adding 25 gm of soil directly to a tared 60 ml jar containing 25 ml's of purge and trap grade methanol. It is not advisable to weigh out exactly 25 gm of soil for each sample because this is a ball park figure and any agitation causes unnecessary volatilization. Instead weigh out one 25 gm sample of site soil into an empty 60 ml jar, mark a fill line and use this jar as a model for collecting the actual samples. The maximum amount of soil that can be added to a 60 ml jar is 35 gm. If a 40 ml jar is used, the sampler should add a maximum of 20 gm of soil and 20 ml's of methanol.

For samples collected for LUST investigations the DNR recommends adding the methanol to the soil because many samplers use field screening to identify samples for analysis and soil samples preserved in methanol are a hazardous waste unless analyzed by a laboratory. Collect 2 samples at each sample location, one for field screening and one for potential laboratory analysis. Place 25 grams of soil in an empty, tared 60 ml VOC vial for potential lab analysis (20 gm maximum for a 40 ml vial). Cap the vial and place on ice while conducting field screening of the other co-located sample. Collecting soils into an intermediate container and subsampling after screening has been done is not acceptable. After completing field analysis of all samples select the co-located laboratory samples that should be analyzed based on the field screening results.

There are three ways to add methanol to the soil. The first two involve the use of a glass syringe and non-coring syringe needle to transfer the methanol from a septa vial containing purge and trap grade methanol to the sample vial. Both require the sampler to use a fresh syringe needle for each sample to avoid cross contamination. The first method requires loosening the cap to relieve pressure buildup from the methanol addition. The second method is to use a smaller sample size and less methanol to overcome sample pressurization. All samples must maintain a 1:1 ratio of milliliters (ml) of methanol to grams. DNR recommends using 10 gm soil and 10 ml of methanol but the laboratory analyzing the samples should approve the sample size. It is also possible to remove the cap and add the methanol directly to the jar. However, this method increases the potential for volatilization, cross contamination, and spillage. Add the methanol to samples within 2 hours of collection. Samples should be returned to an iced cooler immediately after preservation. Samples may be preserved by the laboratory only if they are received by the lab within 2 hours of collection.

How can I dispose of soil samples that aren't sent in for analysis?

Soil preserved in methanol is a hazardous waste. Soil samples are exempt from hazardous waste regulations if they are analyzed at a laboratory. Any samples that are not analyzed are hazardous waste

and the generator is legally responsible for proper disposal. In general, do not collect and preserve excess samples, and if you collect and preserve a sample, have it analyzed.

What can be done to insure personal safety while handling the methanol?

Do not store the methanol in a hot place. On hot days carry the methanol samples in your sample cooler prior to sample collection. Beware of pressure buildup in heated sample jars containing methanol. Avoid inhaling the methanol vapors. Work quickly while filling sample jars to minimize your exposure to the methanol. Open only one methanol vial at a time. Do not handle methanol in an unventilated area. If you are preserving samples inside a vehicle in inclement weather, make sure to provide some ventilation.

What is a dry-weight sample and how many do I have to collect?

A dry weight sample is simply a jar filled with dirt that is required by the lab to calculate the percent moisture of the soil at the sampling location. Dry weight samples should be tightly sealed to prevent loss of soil moisture but, since they are not analyzed for contaminants, they do not require special preservation. You need to collect a dry-weight sample for each sampling location at the site.

How can I avoid cross-contamination?

Site assessors should not handle petroleum products prior to sample collection. Wash your hands after filling your car with gas. Under no circumstances should methanol sample jars be stored with gasoline (e.g. with a gas can in the trunk of a car). Tank removers doubling as site assessors should wear coveralls during tank removal and take them off before sampling. Vehicle exhaust and ambient gasoline vapors are another potential source of cross contamination. Quickly open, fill, and reseal methanol sample jars. Low concentrations of ambient vapors can be monitored with a PID. Contamination from other samples and sample breakage are other potential sources. Put each sample in a separate freezer bag.

What are the consequences of spilling methanol?

If methanol is spilled from vials before or after sample collection the lab results will be skewed and incorrect. When a small amount of methanol is spilled during the sampling process it is necessary to resample using a fresh vial. If methanol is spilled during shipping to the laboratory the DNR will ask for resampling.

Will rain water entering the sample jar affect the results?

It may. Do not allow rain water to enter a sample jar. Suspend sampling if it is raining hard.

How should I ship the jars to the lab?

Methanol must be shipped in accordance with the attached shipping instructions. To pack the jars in an absorbent material and still keep them on ice, place the jars in an insulated cooler with ice or other coolant and then place the cooler in a slightly larger cardboard box. Fill the space between the cooler and the box with the absorbent material (e.g. vermiculite).

Is there a shelf-life for unused methanol jars?

The shelf-life may be specified by the lab providing the jars and could be 15-30 days.

What companies provide jars containing methanol and other equipment?

Tared sample jars containing methanol should be obtained from the laboratory that will perform the analysis. A list of commercial labs certified for VOC analysis is available from the DNR at the address shown in the references.

SHIPPING METHANOL

The Wisconsin Department of Natural Resources' "Modified GRO Method for Determining Gasoline Range Organics" requires laboratories and samplers to ship sample vials with small amounts, (25 mls), of methanol for in field preservation of samples.

Methanol -is considered a hazardous material by the U.S. Department of Transportation. Methanol shipments must follow Title 49 of the Code of Federal Regulations (49 CFR). However, methanol shipped in small amounts qualifies for a small quantity exemption (section 173.4).

Title 49 CFR is a lengthy document. The following is a summary of the requirements for shipping samples. Consultants and Laboratories should refer to the code for a complete review of the requirements.

- 1) Maximum volume per vial is 30 mls.
- 2) A vial must not be full (of methanol).
- 3) Vials must be securely packed with cushioning and surrounded by an absorbent material such as vermiculite.
- 4) Packaging must be strong enough to hold up to the intended use, (see specifications in 173.4 6i).
- 5) The maximum package weight is 65 pounds.
- 6) The package must be marked with the following statement:

"This package conforms to conditions and limitations specified in 49 CFR 173.4"

Refer to section 173.4 of Title 49 CFR for detailed information on these requirements. In addition, it would be prudent to mark these packages with the words "THIS SIDE UP" and arrows in case the vials are improperly sealed.

If the methanol has leaked from the vials in transport to the lab the Department will ask for resampling.

Note: This form is required by the Department of Natural Resources for leasing underground storage tank sites in compliance with ch. NR 500-560, NR 150 and NR 419, Wis. Admin. Code.

Sample Collection(s)	Task/Work Section/Company	Telephone Number (include area code)
Property Owner	Property Address	Telephone Number (include area code)

I hereby certify that I received, properly handled, and disposed of these samples as noted below:

Relinquished By (Signature)	Date/Time	Received By (Signature)	Temperature of temperature blend _____ If samples were received on ice and there was ice remaining, you may report the temperature as "received on ice". If all of the ice was melted, the temperature of the melt may be substituted for a temperature blend.
Relinquished By (Signature)	Date/Time	Received By (Signature)	
Relinquished By (Signature)	Date/Time	Received for Laboratory By (Signature)	

[illegible]

¹ Specify groundwater, surface water, soil, leachate, sludge, etc.

²Sample description must clearly correlate the sample ID to the sampling location.

DEPARTMENT USE/OPTIONAL FOR SOIL SAMPLERS	DEPARTMENT USE ONLY
Disposition of unused portion of sample Laboratory should	Split samples: Offered? <input type="checkbox"/> Yes <input type="checkbox"/> No (Check & one)
<input type="checkbox"/> Dispose	Accepted? <input type="checkbox"/> Yes <input type="checkbox"/> No (Check & one)
<input type="checkbox"/> Retain for ____ days	Accepted By: _____
<input type="checkbox"/> Return	
<input type="checkbox"/> Other	

DEPARTMENT USE/OPTIONAL FOR SOIL SAMPLERS		DEPARTMENT USE ONLY	
Disposition of unused portion of sample		Split samples: Offered? <input type="checkbox"/> Yes <input type="checkbox"/> No (Check one)	
Laboratory should:	<input type="checkbox"/> Dispose <input type="checkbox"/> Retain for ____ days	Accepted? <input type="checkbox"/> Yes <input type="checkbox"/> No (Check one)	
	<input type="checkbox"/> Return <input type="checkbox"/> Other	Accepted By: _____ Signature	

Wisconsin Lab Certification Number

[illegible]

6. If data is questionable for any reason, this column should be checked (examples are missed holding times or out of control QC samples).

Filled Out By

ATTACHMENT 7

Geographic Referencing Using the Public Lands Survey System

The public lands survey system (PLS) is a system of land surveying established by the United States Government in the 19th century. It is one of the most common systems of geo-referencing in use in Wisconsin and is the easiest system to learn for the purpose of providing the legal description of the site location for underground storage tank site assessments.

The parts of the reference system from largest to smallest are the township, range, section, quarter section, and quarter-quarter section. A **township** is a 6-mile by 6-mile square of land. The land area of Wisconsin, which is approximately 325 miles long and 300 miles wide, contains over 400 townships. Townships are identified using the PLS reference system, which is similar to a Cartesian coordinate system. In the PLS system, the “x-axis” (east-west) is the **town base line** and the “y-axis” (north-south) is the fourth principal **meridian**. Any township in Wisconsin can be identified using an ordered pair consisting of a township number and a range number. Township numbers are not unique to a particular township. For example, 50 different townships can have the same township number. Only the combination of a township number and range number uniquely identifies a township.

Townships north of the town base line are followed by an N and townships south of it are followed by an S. Since all townships in Wisconsin are north of the town base line, all Wisconsin township numbers are followed by an N. Townships east of the fourth principal are followed by an E and townships west of it are followed by a W. For example, T1N R2W designates the township in Grant county occupied by the southwesternmost corner of Wisconsin. T34N R30E designates the township in Door county occupied by the northeastern tip of Washington Island. Note that, although the town base line runs east-west, township numbers change in the north-south direction. Similarly, although the fourth principal meridian runs north-south, the range numbers change in the east-west direction.

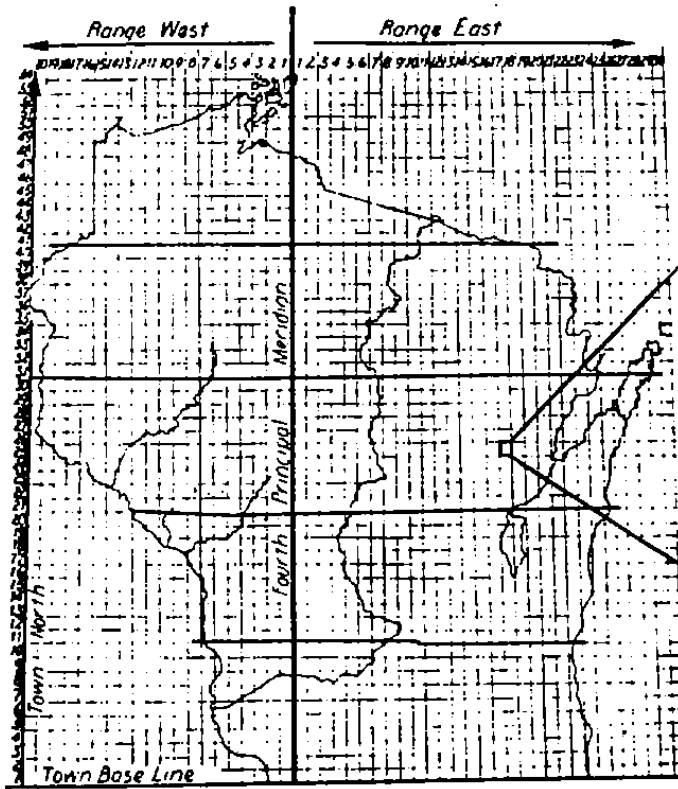
Sections are 1-mile by 1-mile squares of land. Each township contains 36 sections. The sections are numbered in a standard zig-zag order, which was used by field crews conducting traverses. The sections are further divided into **quarters** and **quarter-quarters** (i.e. sixteenths). The four quarters are referenced using the four corners of the compass: northeast (NE), southeast (SE), southwest (SW), and northwest (NW). The 16 quarter-quarters are referenced by first identifying the quarter within which it lies and then referencing the four corners of the compass again. For example, **X** in the figure is in the NW quarter-quarter of the SE quarter of section 21. **0** in the figure is in the SE quarterquarter of the NW quarter.

It is possible to further subdivide quarter-quarters into quarter-quarter-quarters following the same pattern. The length of a quarter-quarter-quarter is 1/16 of a mile or 330 feet. In summary, the legal description of **X** is NW 1/4, SE 1/4, Section 21, T25N, R17E

The legal description of a particular site can be determined by locating the site on a USGS topographic map or a plat book. USGS maps can be purchased from the USGS as well as from the Wisconsin Geologic and Natural History Survey (WGNHS) in Madison. Plat books can be purchased from Rockford Map Publishers and are available for viewing at most libraries and town halls.

Note: it is not necessary to provide detailed metes and bounds to satisfy the legal description requirement (e.g. **PTNE 1/4 SEC 7 T7N R20E** COM EI/4 COR NO 44'E 832.68 FT THE BGN NO 44'E 505 FIP N89 23'W 189.86 FT S61 01'W 210 FTS51 33'W 150 FT S28 58'E 387.81 etc.,etc.,etc.) However, such descriptions do provide all or part of the necessary information (shown in bold).

WISCONSIN



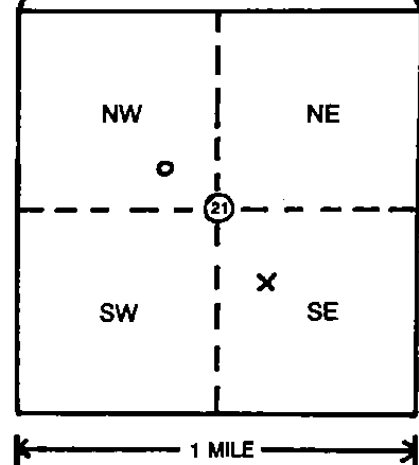
TOWNSHIP T25N R17E

6 MILES

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 _x	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

NW-NW	NE-NW	NW-NE	NE-NE
SW-NW	SE-NW	SW-NE	SE-NE
NW-SW	NE-SW	NW-SE	NE-SE
SW-SW	SE-SW	SW-SE	SE-SE

SECTION 21



SECTION 21